

mala during 1992, 1993 and 1994. Seven of 12 nests failed during incubation, and of the five young that hatched, four survived to fledging age. All clutches documented were of a single egg. Incubation periods of 32 and 33 d were recorded for two nests. Nestling periods for the four successful nests were 36, 39, 39 and 40 d. Males and females shared tasks of incubation, and of delivering prey to the nest and feeding chicks. Insects made up 73–95% of the prey items delivered to the nest. Lizards, bats, birds, frogs and snakes were also recorded as prey items. Plumbeous kites hunted on the wing, while soaring over the canopy, and by making short flights or stoops from perches. Though most insects were plucked from the air, a smaller percentage of insects and other prey items were captured when the kites snatched them from the forest canopy. Spatio-temporal patterns of insect abundance have probably exerted a strong influence on the evolution of plumbeous kite breeding biology and behavior.

#### A PHYLOGENETIC ANALYSIS OF THE AVIAN FAMILY ACCIPITRIDAE BASED ON MOLECULAR DATA

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The avian family Accipitridae is a large, diverse family composed of approximately 230 species divided into 56 genera. The evolutionary relationships among accipitrid taxa have been examined previously using phenetic and parsimony approaches against a variety of data sets ranging from behavior to karyotypic. These studies have resulted in conflicting phylogenies, presumably due to the high level of homoplasy, perhaps, the result of morphological convergence on diet. We analyzed DNA sequence data from the mitochondrial encoded cytochrome-b gene using maximum parsimony, distance and maximum likelihood methods to explore the phylogenetic relationships among the major morphological lineages within Accipitridae. Additionally, an analysis of branch lengths between nodes was made under the assumptions cytochrome-b evolving in a clock-like fashion and with differing rates of evolution over time. The major findings in this study include support for the polyphyly of the kite genera and the sister group relationship of the osprey (*Pandion haliaetus*) with accipitrid taxa, and evidence for a number of periods of rapid morphological diversification.

#### DICHROMATISM IN THE GENUS *FALCO*: SEXUAL SELECTION VERSUS AN ADAPTIVE PEAK

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Approximately one-fifth of all species in the genus *Falco* exhibit marked sexual dichromatism. In the absence of substantial differences in diet or foraging behavior between the sexes, it is likely that dichromatism evolved in response to sexual selection (e.g., mate attraction) rather than to natural selection. Falcons exhibit considerable interspecific variability in diet and in the manner in which prey are captured, ranging from invertebrates and small mammals captured on the ground to birds captured in flight. A number of morphological characteristics, including tarsal length, toe length, overall body size, and the degree of sexual size dimorphism, have been suggested to be adaptive to the specialized foraging niche of aerial avivory. In this study, we examined the associations among dichromatism, foraging niche (bird specialist or not), body size (based on an analysis of log-transformed body mass and wing length), and body size dimorphism. The results support the view that large falcons tend to be monochromatic bird-eaters exhibiting a large degree of size dimorphism. However, in contrast to widespread perception, foraging niche was not significantly related to size dimorphism; for many bird specialists, the female is not much larger than the male. Because foraging specialists likely occupy a steeper adaptive peak, and therefore lack the evolutionary plasticity to withstand much sexual selection, we expected dichromatism to be significantly more common among foraging generalists. Indeed, the merlin (*F. columbarius*) is the only falcon species that is both dichromatic and a bird specialist.

#### RELATIONSHIPS BETWEEN HABITAT SELECTION AND PRODUCTIVITY OF RED-SHOULDERED HAWKS IN NEW JERSEY AND NEW YORK

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Thirty red-shouldered hawk (*Buteo lineatus*) nests were monitored for productivity and habitat structure was measured. Stepwise multiple regression (SMR) analysis was run for mean annual productivity versus habitat variables. A separate analysis was run for macrohabitat (landscape level), microhabitat (stand level), tree species composition, and nest tree parameters. The macrohabitat SMR indicated higher productivity was correlated with greater distance to human habitation (i.e., less forest fragmentation and disturbance) and at lower elevations (i.e., more wetlands). The microhabitat SMR indicated higher productivity with greater tree densities in the 40–50 and 70+ cm diameter classes and higher percent decadence, parameters associated with older growth stands. The tree species SMR indicated that nest stands with higher relative dominance